URS



February 28, 2014

Ms. Joyel Dhieux
On-Scene Coordinator
Preparedness, Assessment and Emergency Response
U.S. Environmental Protection Agency (EPA)
Region VIII (8EPR-SA)
1595 Wynkoop Street
Denver, CO 80202

**Subject: Revised Draft Investigation and Removal Action Work Plan**
**Moline Street PCB Site, Aurora, Colorado**

Dear Joyel:

Enclosed are two copies of the Revised Draft Investigation and Removal Action Work Plan for the Moline Street PCB Site in Aurora, Colorado. Attachments to the Work Plan include a Health and Safety Plan, Standard Operating Procedures, and a Quality Assurance Project Plan.

If you have questions about the enclosed Work Plan, please contact my coworker Sarah Lave at (303) 740-2680 or contact Tom Gieck, The Dow Chemical Company Representative at (970) 256-8889.

Sincerely,

Karen M. Maestas

Karen Maestas, P.E.
Vice President
URS Project Manager

Enclosures

cc: Tom Gieck, The Dow Chemical Company Representative (with enclosures)
Project File

URS Corporation
8181 East Tufts Avenue
Denver, CO 80237
Tel: 303.694.2770
Fax: 303.694.3946

# *Moline Street PCB Site*

## *Investigation and Removal Action Work Plan*

## *Revised Draft*

URS

*February 2014*

## Dhieux, Joyel

**From:** Dhieux, Joyel
**Sent:** Monday, March 24, 2014 4:10 PM
**To:** 'gieckte@dow.com'
**Cc:** 'sarah_lave@urscorp.com'; 'louishard@comcast.net'
**Subject:** Moline St. PCB Workplan

Hi Tom,

As I mentioned to Sarah last week, we approve the February 2014 Revised Draft Workplan with the revisions to the sampling plan that Sarah and I discussed on-site last week. While the core sampling generally followed the proposal in the Workplan, sampling locations were adjusted to areas with cracks, seams, and/or visible staining on the concrete floors.

I understand that URS will be preparing a technical report summarizing the findings of the wipe and core sampling. I look forward to the report. Hopefully, the lab analyses will confirm our field results from last week. I was pleased that we did not find any new areas of significant contamination.

Thanks,

Joyel

Joyel Dhieux
Federal On-Scene Coordinator
U.S. Environmental Protection Agency Region 8
Phone: 303-312-6647
Cell: 720-441-9961

**REVISED DRAFT**
**REVISION 0.0**
**WORK PLAN**

# MOLINE STREET PCB SITE INVESTIGATION AND REMOVAL ACTION WORK PLAN

February 28, 2014

URS

URS Corporation
8181 E. Tufts Avenue
Denver, CO 80237

Project No. 41569671

# TABLE OF CONTENTS

# TABLE OF CONTENTS



## LIST OF TABLES



## LIST OF FIGURES



## LIST OF APPENDICES

# List of Acronyms

| | |
|---|---|
| ACM | asbestos containing material |
| amsl | above mean sea level |
| ARARs | Applicable or Relevant and Appropriate Regulations |
| bgs | below ground surface |
| BMP | Best Management Practice |
| CABI | Certified Asbestos Building Inspector |
| CDOT | Colorado Department of Transportation |
| CDPHE | Colorado Department of Public Health and the Environment |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CON | grab sample from concrete |
| CRZ | Contaminant Reduction Zone |
| D | delineation boring |
| DADS | Denver Arapahoe Disposal Site |
| DEB | grab sample from other debris |
| DOT | U.S. Department of Transportation |
| DPT | direct push technology (drilling) |
| EPA | United States Environmental Protection Agency |
| ESA | Environmental Site Assessment |
| EXC | grab sample from excavation |
| EZ | Exclusion Zone |
| F | sample taken from floor |
| GPS | Global Positioning System |
| HASP | Health and Safety Plan |
| IDW | investigative derived waste |
| LTE | LT Environmental, Inc. |
| mg/kg | milligrams per kilogram |
| NAD 83 | North American Datum of 1983 |
| NAVD 88 | North American Vertical Datum of 1988 |
| NGVD 29 | National Geodetic Vertical Datum of 1929 |
| NPL | National Priority List |
| OSHA | Occupational Safety and Health Administration |
| OVA | organic vapor analyzer |
| P | perimeter boring |
| PCB | polychlorinated biphenyl |

# List of Acronyms

| | |
|---|---|
| PPE | personal protection equipment |
| ppm | parts per million |
| QA | quality assurance |
| QAPP | Quality Assurance Project Plan |
| QC | quality control |
| RA | removal action |
| RAO | remedial action objective |
| RCRA | Resource Conservation and Recovery Act |
| RPM | Remedial Project Manager |
| SEM | Strategic Environmental Management, LLC |
| SEO | Office of the State Engineer |
| SO | step-out boring |
| SOP | Standard Operating Procedure |
| SS | grab sample from soil stockpile |
| SVOC | semi-volatile organic compound |
| SWPPP | surface water pollution prevention plan |
| SZ | Support Zone |
| TCLP | Toxicity Characteristic Leaching Procedure |
| TCRA | Time Critical Removal Action |
| TDCC | The Dow Chemical Company |
| TSCA | Toxic Substances Control Act |
| UDOT | Utah Department of Transportation |
| UNCC | Utility Notification Center of Colorado |
| URS | URS Corporation |
| VCUP | Voluntary Clean-Up Program |
| VOC | volatile organic compound |
| W | sample taken from sidewall |
| Work Plan | Investigation and Removal Action Work Plan |
| $yd^3$ | cubic yards |

This Revised Draft Investigation and Removal Action Work Plan (Work Plan) was prepared by URS Corporation (URS) on behalf of The Dow Chemical Company (TDCC). The Administrative Settlement Agreement and Order on Consent (Settlement Agreement) for the Moline Street PCB Site became effective on January 30, 2014 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (reference CERCLA Docket No. CERCLA-08-2014-0002). The U.S. Environmental Protection Agency (EPA) was notified that URS was TDCC's selected contractor on January 31, 2014.

This Work Plan describes the tasks and activities necessary to conduct environmental investigation and remediation activities of the former magnesium extrusion facility located at 3555 Moline Street (Site) in Aurora, Colorado (Figure 1). The selected remedy includes removal and offsite disposal of soil and concrete containing elevated levels of polychlorinated biphenyls (PCBs). This Work Plan provides the Site background, project requirements and considerations, the project approach for field activities, design assumptions and parameters, reporting, and project schedule and contracting plan.

This Work Plan presents the overall approach for the removal action (RA) with general specifications and assumptions based on the current understanding; however, the details will be refined in a supplemental work plan following the completion of additional investigation activities. This Work Plan includes eight sections as follows:

- Section 1 Introduction – includes work plan organization.
- Section 2 Site Background and History – includes a brief Site description, Site operational history, an existing data and previous Site activities discussion, and a Site conditions summary.
- Section 3 Project Requirements and Considerations – describes the project tasks and technical and management approach for work.
- Section 4 Project Approach and Field Activities – describes the project approach and individual investigation and RA tasks.
- Section 5 Design Assumptions and Parameters – includes information regarding disposal locations and quantities, building demolition and stability findings, monitoring requirements, and work zone impacts.
- Section 6 Documentation and Reporting – outlines the information to be summarized in a report following the completion of field activities.
- Section 7 Project Schedule – includes information on timing of primary tasks.
- Section 8 References – lists the references.

Work activities are also described in the following appendices:

- Appendix A – Site Health and Safety Plan (HASP)
- Appendix B – Standard Operating Procedures (SOPs)
- Appendix C – Quality Assurance Project Plan (QAPP)

*This page intentionally left blank*

This section describes the Site, operational history, past Site investigations, Site characteristics and conditions, and the regulatory path under which the Site environmental work is and has been conducted. This section provides background and context to later sections of this document and is not meant to be comprehensive. Subsection 2.3 lists environmental investigations and reports where additional information can be found.

## 2.1 SITE DESCRIPTION

The Site is located in Aurora, Colorado near the southwest corner of the intersection of Smith Road and Moline Street (Figure 1). The Site covers approximately 1.8 acres and includes a building with an address of 3555 Moline Street, as shown in Figure 2. The Site has an elevation of approximately 5,300 feet above mean sea level (amsl) and is relatively flat, sloping slightly to the southwest toward Sand Creek located approximately 2,000 feet south of the Site.

Figure 2 shows the Site vicinity; where the Site (Figure 3) is part of a larger property, which includes two parcels with a building at 3555 Moline Street (the Site) and a northern building with an address of 11380 East Smith Road with a combined property size of 5.7 acres. The property was developed from 1960 through 1972 and included the two buildings, paved asphalt parking lots to the north and east, and paved concrete storage areas between the two buildings. The northern building (11380 East Smith Road) is currently occupied by Hi-Tec Plastics, Inc., which operates a plastics recycling operation. The Site building (3555 Moline Street) has been vacant since 2009 and was purchased on February 14, 2014 by Hi-Tec Plastics as the Bona Fide Prospective Purchaser. Figure 4 identifies individual sections of, and attachments to, the Site building with their respective surface areas.

The surrounding properties include commercial and light industrial uses. A landfill is located immediately adjacent to the west of the Site and contains mounded surface features; additionally, the Denver County Jail is located west of the landfill. A food distribution facility resides to the south across a vacant field. Several local businesses and warehouses exist east of the Site across Moline Street. A railroad right-of-way parallels Smith Road north of the Site.

## 2.2 SITE OPERATIONAL HISTORY

TDCC began constructing the facility in 1969 which included the extrusion building (3555 Moline St.), and in 1972 a machine shop (11380 East Smith Road) was constructed. The magnesium extrusion facility processed approximately 15 million pounds of magnesium per year in the late 1990s, which occurred within both the Site building and the building to the north (11380 East Smith Road). Raw magnesium materials (i.e., ingots and billets) were brought in by truck and railcar and were stored in the yard area and/or warehouse area. Ingots were extruded through a 4,200-ton press to form poles between 7 and 9 inches in diameter, which were then cut into billets and extruded through a 1,800-ton press into various shapes and profiles. These processes were dry machining, as no cutting fluids were used. The facility operated year-round for 24 hours per day (URS 1999).

In July 1999, Timminco Corporation assumed the lease, purchased the operating assets, and continued operations until they transferred their operations to Mexico in August 2009. The property was purchased by Aurora Smith RD Ventures, LLC, c/o David Goodell in 2007. The

Site was unoccupied from 2009 until 2011 when Hi-Tec Plastics, Inc. leased the property to operate a plastics recycling operation.

TDCC identified that the several chemicals had been historically used to operate and clean the press including hydraulic oils and solvents (TDCC 1999).

## 2.3 INVESTIGATION AND REGULATORY HISTORY

Several environmental investigations have been conducted at the Site. Numerous Phase I and Phase II assessments were conducted on behalf of different companies related to property transfers. The following reports describe the work conducted to date:

- A Phase II Environmental Investigation by URS Greiner Woodward Clyde reported in January 1999 (URS 1999); and
- A Limited Phase II Environmental Site Assessment (ESA) by Paragon Consulting Group reported in May 1999 (Paragon 1999).

On February 9, 1999, the Colorado Department of Public Health and Environment (CDPHE) issued a No Further Action letter based on the 1999 Phase II conducted by URS Greiner Woodward Clyde in 1999 (CDPHE 1999). The letter stated that constituent levels in soil and groundwater were below applicable environmental standards. However, a Phase I was initiated associated with a property transfer in October 2006 resulting in additional investigations as follows:

- A Phase I ESA by Freedom Environmental reported in December 2006 (Freedom Environmental 2006);
- A Phase II ESA by Walsh Environmental reported on August 31, 2009 (Walsh 2009);
- A Phase I ESA by Sundance Environmental reported on October 12, 2009 (Sundance 2009);
- A Phase II ESA by Sundance Environmental reported on June 21, 2010 (Sundance 2010);
- Voluntary Clean-Up Program (VCUP) application by Strategic Environmental Management, LLC (SEM) on August 31, 2010 (SEM 2010) (the Site was denied inclusion to the program as PCB concentrations exceeded the threshold for VCUP inclusion);
- A Subsurface Investigation by SEM reported on February 28, 2012 (SEM 2012); and
- A Phase II ESA by LT Environmental (LTE), Inc. reported on May 14, 2013 (LTE 2013).

EPA contacted TDCC in early 2013 regarding the Site and a site visit was conducted on August 14, 2013. Attendees included representatives from TDCC, URS, EPA, Hi-Tec Plastics, LTE, City of Aurora, and the property owner at the time (Aurora Smith RD Ventures, LLC). Multiple conference calls and meetings were held with EPA and TDCC between August 2013 and October 2013 to determine the scope of the RA. URS submitted an initial Draft Investigation and RA Work Plan to EPA on October 28, 2013, after which negotiations took place between EPA, Hi Tec, and TDCC in preparation of the Settlement Agreement that was executed by EPA on January 30, 2014. This Work Plan is a revision of the Draft Work Plan submitted on October 28, 2013, and captures TDCC's statement of work as specified in the Settlement Agreement.

The Site is placed under the "Time-Critical Removal Action" category and has a Superfund Site ID of #A898, but is not on the National Priorities List (NPL).

## 2.4 SUMMARY OF SITE CHARACTERISTICS AND CONTAMINATION

This subsection summarizes Site characteristics and the current understanding of the nature and extent of contamination near the Site building at 3555 Moline Street.

### 2.4.1 Geology and Hydrogeology

This section summarizes the geology and hydrogeology of the Site, as described in the VCUP (SEM 2010). The Site is located in the Great Plains physiographic province. The soil survey for the vicinity indicates that it is located within an area of the Ascalon-Vona-Truckton association, described as "Nearly level to strongly sloping, well drained and somewhat excessively drained, loamy and sandy soils formed in wind-laid deposits; on uplands."

Underlying the Site soils are sediments of the Quaternary wind deposits beneath which are sediments of the Tertiary-Cretaceous Denver Formation and Lower Part of the Dawson Arkose sediments (SEM 20210). Wind-blown sediments typically consist of fine-grained sandstones, siltstones and shales, or claystones deposited in a wind-laid environment. The Denver and Dawson Formations generally consist of shales and claystones with interbedded sandstones and siltstones. The near surface (upper 35 feet) stratigraphy at the Site consists of Quaternary alluvial deposits and fluvial deposits of the Tertiary Denver Formation. The total thickness of these Quaternary deposits beneath the Site ranges from 17 to 35 feet. The soils underlying the Site consist primarily of silty to very silty, brown to gray-brown clays. The clays are slightly moist with a thickness ranging between 1.6 to 2.8 feet (URS 1999).

The upper units of the aquifer system include the Dawson, Denver, and Arapahoe members, which are typically unconfined or semi-confined water-bearing zones. The stratigraphically lowest member of the aquifer system is the Cretaceous Fox Hills Formation, which is a confined water-bearing unit in much of the Denver metropolitan area. The water-bearing zone at the Site represents the water table aquifer and occurs under unconfined conditions. The base of the uppermost aquifer is the Denver Formation claystone. The claystones separate the uppermost aquifer from deeper bedrock aquifers in the Denver Basin (URS 1999).

Shallow groundwater flows towards the northwest, although the topography slopes to the southwest. Water levels measured in Site wells indicate the depth to groundwater varies from approximately 13 to 16 feet below ground surface (bgs) (LTE 2013, URS 1999).

### 2.4.2 Groundwater Exposure

The Site currently receives drinking water from the public water supply and there are no future plans to install a drinking water well at the Site. The Environmental Data Resources, Inc. report published with the October 12, 2009 Phase I report provides a detailed list of 53 water wells located within one-half mile of the Site and none of these wells are used for supplying drinking water. There are no Public Water Supply Wells within a mile of the Site (SEM 2010).

### 2.4.3 Nature and Extent of Contamination

The previous investigations included analyses for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, total petroleum hydrocarbons, and PCBs in Site

soil and groundwater. However, only two of the more recent investigations (since 2010) included PCB analyses and there is limited data on the vertical or horizontal PCB extent in soil. As shown on Figure 5, the building has been separated into sections identified by letter (A through I). The highest PCB concentration in soil was detected in the Skimmer Room (Building C) at a depth of 1.5 to 2.5 feet at location SB-2. PCBs were detected in soil and concrete in the western portion of the Site building (Figure 4 and Figure 5) at concentrations greater than 500 milligrams per kilogram (mg/kg). The additional field investigation to be conducted under this Work Plan is intended to define the horizontal and vertical PCB extent near the areas where PCB contamination has already been observed, and will include Site areas that have not yet been investigated. The additional investigation effort is described further in Section 4.

This section describes the project requirements, as well as some of the assumptions and practices for health and safety and project quality purposes.

## 3.1 REMOVAL ACTION OBJECTIVES AND ARARS

Per the Settlement Agreement, the RA for this Site focuses on PCBs in soil. PCB cleanup levels of 25 and 100 mg/kg, or parts per million (ppm), have been established for surface and subsurface soils, respectively. Surface soil is defined as the uppermost foot of soil, where subsurface soils are deeper than 12 inches.

In the event that PCB concentrations remain in place above clean up levels upon completion of the RA, the soils and/or foundation will be capped to prevent human exposure and to reduce PCB migration from infiltration and/or wind transport. Soils impacted with PCBs would be left in place if (1) groundwater is encountered before the vertical extent of contamination is defined; (2) PCB contamination extends deeper than 3 feet bgs beneath Building B; (3) contaminated soils cannot be safely removed from beneath Buildings D through I without compromising building integrity; and/or (4) the foundation to Buildings D through I is contaminated.

CONCRETE RE: LANDFILL SEE P3-2

DO WE NEED MORE CLARITY HERE? NO

As stated on Page 6 in Appendix A of the Settlement Agreement, the following remedial action objective (RAO) has been established for the 3555 Moline Street property (the Site):

> *The goal of the removal action is to achieve a clean up level of 25 ppm at the surface and within the top twelve inches. Below the top twelve inches, the goal of the removal action is to achieve a clean up level of 100 ppm. All accessible contaminated soils and concrete at the Site will be replaced with clean soils and capped with concrete or asphalt.*

Applicable or Relevant and Appropriate Regulations (ARARs) were identified and evaluated in Appendix A of the Settlement Agreement, and are also presented in Table 1 of this document.

## 3.2 SUMMARY OF THE PROPOSED ACTION

Per the Settlement Agreement, the proposed action is intended to "reduce human exposure to the hazardous substances by (1) removing the bulk of the PCB contamination and (2) reducing the mobility and transport of any remaining PCB contamination with the installation of a concrete cap." The following key elements were identified:

> *(1) additional sampling of the soils, concrete and building structure to better determine the scope of the removal action; (2) demolition of outer building structures including Buildings A, C and all or a portion of Building B (See Appendix 1, Figure 2); (3) excavation of contaminated concrete and soils underlying Buildings A, B and C, as determined necessary, to achieve appropriate clean up levels; (4) removal of concrete via abrasive grinding, where appropriate; (5) cleaning of any PCB contamination remaining on the walls of the building structure; (6) proper disposal of PCB-contaminated wastes in a regulated landfill; and (7) replacement of the concrete to provide a cap for any PCB contamination left in place. The removal of PCB contamination in Building D will be determined following additional sampling and assessment.*

The proposed action will be accomplished in two stages as follows:

- Stage I includes additional investigation activities to better understand the nature and extent of contamination, which will assist in planning the RA. An asbestos building

IF WE DON'T ADD CLARITY HERE, I CAN ALWAYS INCORPORATE IN FOLLOW

This section describes the project requirements for health and safety and project quality purpo ctices

## 3.1 REMOVAL ACTION OBJECTIVES

Per the Settlement Agreement, the RA for this Site focuses on ... levels of 25 and 100 mg/kg, or parts per million (ppm), have been established for surface and subsurface soils, respectively. Surface soil is defined as the uppermost foot of soil, where subsurface soils are deeper than 12 inches.

In the event that PCB concentrations remain in place above clean up levels upon completion of the RA, the soils and/or foundation will be capped to prevent human exposure and to reduce PCB migration from infiltration and/or wind transport. Soils impacted with PCBs would be left in place if (1) groundwater is encountered before the vertical extent of contamination is defined; (2) PCB contamination extends deeper than 3 feet bgs beneath Building B; (3) contaminated soils cannot be safely removed from beneath Buildings D through I without compromising building integrity; and/or (4) the foundation to Buildings D through I is contaminated.

CONCRETE TO LANDFILL SEE P3, 2

DO WE NEED MORE CLARITY HERE? NO

As stated on Page 6 in Appendix A of the Settlement Agreement, the following remedial action objective (RAO) has been established for the 3555 Moline Street property (the Site):

> *The goal of the removal action is to achieve a clean up level of 25 ppm at the surface and within the top twelve inches. Below the top twelve inches, the goal of the removal action is to achieve a clean up level of 100 ppm. All accessible contaminated soils and concrete at the Site will be replaced with clean soils and capped with concrete or asphalt.*

Applicable or Relevant and Appropriate Regulations (ARARs) were identified and evaluated in Appendix A of the Settlement Agreement, and are also presented in Table 1 of this document.

## 3.2 SUMMARY OF THE PROPOSED ACTION

Per the Settlement Agreement, the proposed action is intended to "reduce human exposure to the hazardous substances by (1) removing the bulk of the PCB contamination and (2) reducing the mobility and transport of any remaining PCB contamination with the installation of a concrete cap." The following key elements were identified:

> *(1) additional sampling of the soils, concrete and building structure to better determine the scope of the removal action; (2) demolition of outer building structures including Buildings A, C and all or a portion of Building B (See Appendix 1, Figure 2); (3) excavation of contaminated concrete and soils underlying Buildings A, B and C, as determined necessary, to achieve appropriate clean up levels; (4) removal of concrete via abrasive grinding, where appropriate; (5) cleaning of any PCB contamination remaining on the walls of the building structure; (6) proper disposal of PCB-contaminated wastes in a regulated landfill; and (7) replacement of the concrete to provide a cap for any PCB contamination left in place. The removal of PCB contamination in Building D will be determined following additional sampling and assessment.*

The proposed action will be accomplished in two stages as follows:

- Stage I includes additional investigation activities to better understand the nature and extent of contamination, which will assist in planning the RA. An asbestos building

evaluation was conducted on February 24, 2014 for information prior to potential demolition. Preliminary findings indicated that ACM is not present within investigation and demolition areas, with the exception of the mastic used for the floor tile in Building G.

- Stage II includes demolition, excavation, backfilling, and restoration activities. A landfill is located directly west of the Site; therefore, precautions will be taken to avoid potential landfill material sloughing into the excavation by limiting the depth of excavation beneath Building B to 3 feet bgs. The horizontal and vertical extent of the excavation beneath Buildings C through I (where applicable) will be influenced by the presence of utilities and concerns regarding structural integrity as dictated by removal methods (described further in Subsection 4.4).

This Work Plan includes a detailed plan for Stage I activities with general information regarding Stage II activities, which will be furthered detailed in a separate Stage II Work Plan following the evaluation of Stage I results. The project approach and tasks are detailed in Section 4.

## 3.3 HEALTH AND SAFETY REQUIREMENTS

A Site-specific HASP is included in Appendix A, which addresses both investigation and excavation activities. The HASP will be updated as necessary following evaluation of the investigation results, prior to commencing Stage II activities including demolition, excavation, backfill, and restoration.

The HASP includes Safety Management Standards and Activity Hazard Analyses for project tasks described in this Work Plan. The HASP also provides information on safety monitoring, personal protective equipment (PPE), and emergency contract information. The HASP will be referenced by personnel conducting the investigation and RA activities.

### 3.3.1 General Work Zone Safety

During the field activities, the work area will be marked with high-visibility barriers, cones, and/or tape/flagging to protect workers. The Site property will be enclosed with existing and temporary fencing to restrict access to bystanders. The gates will be locked at the end of the work day to preclude trespassers and potential vandalism.

URS will hold an initial safety meeting with Hi-Tec personnel prior to commencing work and will communicate with Site personnel to inform them of activities and possible impacts to Hi-Tec operations at the Site. URS will hold daily safety meetings with onsite URS subcontractors every morning that field activities are conducted onsite.

### 3.3.2 Contamination-Related Work Zones

The HASP describes the monitoring program that will assess the presence of PCB-contaminated dust in the building. An asbestos building evaluation was conducted on February 24, 2014 for information prior to potential demolition. Preliminary findings indicated that ACM is not present within investigation and demolition areas, with the exception of the mastic used for the floor tile in Building G. If field monitoring (e.g., from wipe sampling and real-time air monitoring instruments) indicates that the air quality action levels have been exceeded, requiring the use of chemical protective equipment, work zones will be established as described below.

evaluation was conducted on February 24, 2014 for information prior to potential demolition. Preliminary findings indicated that ACM is not present within investigation and demolition areas, with the exception of the mastic used for the floor tile in Building G.

- Stage II includes demolition, excavation, backfilling, and restoration activities. A landfill is located directly west of the Site; therefore, precautions will be taken to avoid potential landfill material sloughing into the excavation by limiting the depth of excavation beneath Building B to 3 feet bgs. The horizontal and vertical extent of the excavation beneath Buildings C through I (where applicable) will be influenced by the presence of utilities and concerns regarding structural integrity as dictated by removal methods (described further in Subsection 4.4).

This Work Plan includes a detailed plan for Stage I activities with general information regarding Stage II activities, which will be furthered detailed in a separate Stage II Work Plan following the evaluation of Stage I results. The project approach and tasks are detailed in Section 4.

## 3.3 REQUIREMENTS

ppendix A, which addresses both investigation and be updated as necessary following evaluation of the cing Stage II activities including demolition, excavation,

nt Standards and Activity Hazard Analyses for project e HASP also provides information on safety monitoring, and emergency contract information. The HASP will be e investigation and RA activities.

### 3.3.1 General Work Zone Safety

During the field activities, the work area will be marked with high-visibility barriers, cones, and/or tape/flagging to protect workers. The Site property will be enclosed with existing and temporary fencing to restrict access to bystanders. The gates will be locked at the end of the work day to preclude trespassers and potential vandalism.

URS will hold an initial safety meeting with Hi-Tec personnel prior to commencing work and will communicate with Site personnel to inform them of activities and possible impacts to Hi-Tec operations at the Site. URS will hold daily safety meetings with onsite URS subcontractors every morning that field activities are conducted onsite.

### 3.3.2 Contamination-Related Work Zones

The HASP describes the monitoring program that will assess the presence of PCB-contaminated dust in the building. An asbestos building evaluation was conducted on February 24, 2014 for information prior to potential demolition. Preliminary findings indicated that ACM is not present within investigation and demolition areas, with the exception of the mastic used for the floor tile in Building G. If field monitoring (e.g., from wipe sampling and real-time air monitoring instruments) indicates that the air quality action levels have been exceeded, requiring the use of chemical protective equipment, work zones will be established as described below.

- The Exclusion Zone (EZ) – the extent of this area will be dictated by the active excavation areas and hazardous soil stockpile areas. This zone is where potentially hazardous contaminants and physical hazards to the workers will be contained. Appropriate PPE, as described in the HASP, will be required in this area. The size of the EZ may be altered to accommodate site conditions and to contain contaminants.
- The Contaminant Reduction Zone (CRZ) – a corridor leading from the EZ will be defined; it will lead from the work area to a break area. All decontamination activities will occur in the CRZ. A waste container will be placed at the end of the corridor between the CRZ and EZ so that contaminated disposable equipment can be placed inside and covered. Surface/soil contamination in this area will be controlled using plastic sheeting. No one will be permitted into the CRZ or EZ unless he/she is in full compliance with the HASP requirements.
- The Support Zone (SZ) – the outermost part of the Site will be defined as the SZ for each field activity. Support equipment is located in this uncontaminated or clean area. Typical work clothes are appropriate within this zone. The location of this zone depends on factors such as accessibility, wind direction (upwind of work area), and resources such as roads, shelter, and utilities.

High-visibility barriers, cones, and/or tape/flagging will be used to delineate work zones. The barriers will be set up to provide sufficient maneuvering space for personnel and equipment and to confine the contaminants to the EZ/CRZ. A short piece of barricade tape can be affixed to a secure upright fixture to monitor wind direction throughout the day. A 5-foot opening in the barricades at the support zone (upwind of the work area) will serve as the personnel entry and exit point.

A larger entry will be provided during Stage II implementation for haul trucks that are on Site to transport excavated soil and demolition material and for the mobilization and demobilization of heavy equipment. The personnel decontamination station will be established at this point if formal decontamination procedures are required. Entry and exit from the work area will be made at these openings to control potential sources of contamination and leave contaminated soil and debris in the work area with the exception of contaminated material that is loaded into haul trucks for offsite disposal.

### 3.3.3 Summary of Potential Hazards

The HASP addresses various Site-related hazards and preventive or mitigation measures. In addition to the Site chemical hazards, primarily PCB-contaminated soils, the following physical hazards may be present during work implementation:

- Heat stress and cold stress;
- Noise from the operation of Site equipment;
- Slips, trips, and falls, including falls from same level or falls from height (e.g., aerial lift);
- Back injuries and muscle strains resulting from improper lifting or use of awkward body positions during other work activities;
- Being crushed, struck by, caught in or between moving equipment/vehicles or hand/power tools;

- Excavation hazards, such as engulfment;
- Severe weather, including high winds and lightning;
- Biological hazards, including small biting animals, snakes/other reptiles, biting/stinging insects or spiders, and vector borne diseases; and
- Fatigue.

### 3.3.4 Dust Monitoring and Suppression

High winds and Site operations can cause airborne dust hazards. Continuous monitoring with a MiniRam, or equivalent real-time dust monitor, will be conducted in the operators' and personnel's breathing zone during excavation activities. The monitor will be placed as close as practical to the point where the highest visible dust concentrations are identified. If Site operations generate visible dust or elevated dust monitoring levels, a water mist will be applied to working areas and stockpiles to help reduce dust generation. In addition, stockpiles may be located within the vacant building, to the extent practical, to reduce exposure to wind and precipitation.

## 3.4 EQUIPMENT AND MATERIALS DECONTAMINATION

This subsection discusses the practices and expectations for equipment and materials decontamination. The overall objective of decontamination is to prevent transporting and introducing contaminated materials to an area or media where it previously did not exist. To reduce personnel exposure during decontamination procedures, personnel shall wear appropriate PPE in accordance with the HASP (Appendix A).

After completion of excavation activities, heavy equipment will be decontaminated at a temporary wash down containment pad before being demobilized. Equipment will be washed with soapy water and rinsed with potable water to remove visible soils. Tools will be placed on a decontamination pad or into a bucket and thoroughly washed using a soap solution and brush; washing will be followed by a fresh water rinse. Visible particles are to be removed before the tool is considered clean. Trucks that have been onsite will be observed and cleaned of mud or other potentially contaminated material prior to leaving the Site or entering a public road.

This RA may require a steam cleaner or high-pressure sprayer, wash down containment pad, and decontamination water disposal storage tank. Decontamination water collected from the containment pad will be pumped into the decontamination water disposal storage tank and disposed appropriately after analysis. Plastic liners or sheeting may be used as necessary to contain waste materials generated within the containment pad area.

## 3.5 TRANSPORTATION AND DISPOSAL

Excavated material will be loaded into either lined roll-off bins or lined trucks, manifested, and transported to a designated disposal facility. For those soils that demonstrate the characteristics of hazardous waste, transportation is anticipated to be conducted by registered hazardous waste transporters in leak-proof, rigid, U.S. Department of Transportation (DOT)-approved trucks or containers.

Stockpiled material will be stored in a manner to eliminate the need for disposal trucks to enter the EZ or CRZ, thus eliminating the need to thoroughly decontaminate the haul trucks. Haul truck loading areas will be lined and routinely cleaned to keep contaminated material off of truck tires. Each haul truck will be properly placarded and checked prior to leaving the containment pad for proper containerization and cleanliness. If excess residual soil is observed on a truck, the truck will be decontaminated before it leaves the Site. Once trucks leave the Site, they will follow the prescribed route to the designated disposal facility. Details of the waste hauling will be included in the Stage II Work Plan.

Prior to truck mobilization offsite, the trailer bed will be covered with tarps or plastic sheeting (or similar) and secured to prevent contaminated soils from falling out or being blown out of the haul truck. Manifests will be completed onsite after the soil has been loaded into the truck. Trucks will leave the Site by following the designated haul route to the respective disposal facility. Transportation and hauling guidelines will be provided to truck drivers prior to commencing Site activities.

### 3.5.1 Disposal Facilities

The following waste disposal facilities have been initially identified for wastes and debris encountered or generated during excavation activities:

- Material with PCBs will be sent either to the Clean Harbors (a) Grassy Mountain Landfill Facility located approximately 3 miles east and 7 miles north of Knolls at Exit 41 off I-80 in Grantsville, Utah (zip code of 84029) with an EPA ID number of UTD991301748; and/or (b) Deer Trail Landfill Subtitle C Facility located at 108555 East Highway 36, Deer Trail, CO 80105 with an EPA ID number of COD991300484.
- Material without PCBs will be disposed at a local municipal landfill, such as the Denver Arapahoe Disposal Site (DADS) in Aurora, Colorado, or recycled as appropriate.

DO I NEED TO CHANGE THESE FACILITIES

### 3.5.2 Notifications and Agency Coordination

Before any volume of hazardous substances exceeding a total volume of 10 cubic yards ($yd^3$) departs the Site for offsite disposal, TDCC will provide written notification of the shipment to EPA's designated remedial project manager (RPM) and to the appropriate state environmental official in the receiving state in accordance with the Settlement Agreement. This notification will include evidence that TDCC has inquired of the appropriate regulatory authority regarding the recipient facility's present compliance with all applicable environmental permits and/or interim status requirements, and the results of such inquiry.

OSC

The written notification will include the following additional information where available:

- The name and location of the facility to which the hazardous substances are to be shipped;
- The type and quantity of the hazardous substance to be shipped;
- The expected schedule for the shipment of the hazardous substances; and
- The method of transportation.

TDCC will notify the corresponding official in the receiving state of major changes in the shipment plan, such as a decision to ship the hazardous substances to another facility within the

same state, or to a facility in another state. Appropriate analyses, such as Toxicity Characteristic Leaching Procedure (TCLP), will be evaluated prior to soil disposal.

Administrative coordination with federal agencies is necessary to implement the RA. Coordination is required with Colorado Department of Transportation (CDOT), Utah Department of Transportation (UDOT), and other local agencies as necessary for transporting hazardous waste to an off-site, out-of-state disposal facility. Haul trucks, roll-offs, drums, and the liquid waste storage container(s) shall be placarded/labeled in accordance with U.S. DOT requirements.

## 3.6 OTHER SITE MANAGEMENT CONSIDERATIONS

Equipment and project materials will be stored within a designated area and excavated materials may be stockpiled inside or outside of the building. Best management practices (BMPs) that may be incorporated include erosion and sediment control, good housekeeping, and post-construction practices, if necessary. During construction activities, checks by the URS field representative should be performed on a regular basis and after storm events and issues recorded.

Erosion and sediment controls will be installed along the edges of the construction areas, as needed, so that no disturbed surface soil is allowed to reach surface water drainages during construction activities. The greatest potential sources for migration of materials are:

- Sediment erosion during excavation and grading operations;
- Storm or surface water runoff during excavation and grading operations; and
- Wash water runoff during equipment decontamination activities.

Erosion controls may consist of, but are not limited to: construction fences, protection of existing vegetation, silt fences, and straw bale barriers. The need for a storm water pollution prevention plan (SWPPP) will be assessed following the completion of Stage I activities once the demolition and excavation extents have been estimated.

This section discusses the project approach and field activities associated with the investigation and removal of PCB-contaminated soil beneath the Site building. Given the current Site understanding, TDCC anticipates that partial demolition of the Site building and/or its attachments will be necessary to remove contaminated soils. Stage I activities (investigation) will be implemented in accordance with this Work Plan, whereas Stage II activities are described in general terms with the expectation that implementation details will be defined following the evaluation of Stage I results and further detailed in a Stage II Work Plan.

## 4.1 OVERVIEW OF PROJECT APPROACH AND TASKS

As described in Subsections 3.1 and 3.2, the focus of the RA is to protect human health and the environment from the threat posed by PCBs at the surface and in subsurface soils beneath and in the vicinity of the Site building.

The horizontal and vertical extent of impacted concrete and soil is uncertain. Therefore, TDCC will conduct additional investigation activities (Stage I) prior to commencing removal activities (Stage II) to better determine the excavation areas and depths for RA planning purposes. The excavation extents and volumes will influence the degree of demolition necessary, as well as other project logistics including costing, scheduling, equipment selection, and transport/hauling coordination.

Upon approval to implement this Work Plan, the following Stage I tasks will be conducted, and are described in Subsections 4.2 and 4.3:

- Procure subcontractors (asbestos building inspector, utility locators, drilling, laboratory, surveyors);
- Perform utility locates;
- Prepare and mobilize for additional investigation activities;
- Conduct Site investigation, including surveying, asbestos sampling and building inspection, wipe sampling for PCB-contaminated dust, and delineation of PCBs in soil; and
- Upon receipt of analytical data, establish areas for soil excavation and building demolition.

Based on the Stage I results, a Stage II Work Plan will be prepared that will expand upon and refine the information presented in this Work Plan. The following Stage II tasks are anticipated at this time, and are described in general in Subsection 4.4:

- EPA approval of the Stage II Work Plan;
- Procure subcontractors and mobilize to the Site;
- Prepare Site and stage materials, including hanging plastic sheeting within building partitions and along the floor for stockpiling;
- Demolish building structure for Buildings A and C, with potential partial demolition to Building B - stockpile or haul demolition debris;
- Sawcut or chip and remove concrete – stockpile or haul concrete debris;

This section discusses the project approach and field activities associated with the investigation and removal of PCB-contaminated soil beneath the Site building. Given the current Site understanding, TDCC anticipates that partial demolition of the Site building and/or its attachments will be necessary to remove contaminated soils. Stage I activities (investigation) will be implemented in accordance with this Work Plan, whereas Stage II activities are described in general terms with the expectation that implementation details will be defined following the evaluation of Stage I results and further detailed in a Stage II Work Plan.

## 4.1 OVERVIEW OF PROJECT APPROACH AND TASKS

As described in Subsections 3.1 and 3.2, the focus of the RA is to protect human health and the environment from the threat posed by PCBs at the surface and in subsurface soils beneath and in the vicinity of the Site building.

The horizontal and vertical extent of impacted concrete and soil is uncertain. Therefore, TDCC will conduct additional investigation activities (Stage I) prior to commencing removal activities (Stage II) to better determine the excavation areas and depths for RA planning purposes. The excavation extents and volumes will influence the degree of demolition necessary, as well as other project logistics including costing, scheduling, equipment selection, and transport/hauling coordination.

Upon approval to implement this Work Plan, the following Stage I tasks will be conducted, and are described in Subsections 4.2 and 4.3:

- Procure subcontractors (asbestos building inspector, utility locators, drilling, laboratory, surveyors);
- Perform utility locates;
- Prepare and mobilize for additional investigation activities;
- Conduct Site investigation, including surveying, asbestos sampling and building inspection, wipe sampling for PCB-contaminated dust, and delineation of PCBs in soil; and
- Upon receipt of analytical data, establish areas fo demolition.

SOME OF THESE ACTIONS ARE TO BE COMPLETED BY TH-RC

OK → see pH-8

Based on the Stage I results, a Stage II Work Plan will b refine the information presented in this Work Plan. The at this time, and are described in general in Subsection 4.

- EPA approval of the Stage II Work Plan;
- Procure subcontractors and mobilize to the Site;
- Prepare Site and stage materials, including hanging plastic sheeting within building partitions and along the floor for stockpiling;
- Demolish building structure for Buildings A and C, with potential partial demolition to Building B - stockpile or haul demolition debris;
- Sawcut or chip and remove concrete – stockpile or haul concrete debris;

- Excavate and stockpile or load and haul contaminated soil;
- Field screen and collect confirmation samples for PCBs to delineate excavation extent;
- Backfill, compact, and perform geotechnical testing;
- Pave and restore the Site; and
- Demobilize, cleanup the Site, and conduct wipe sampling for PCBs.

Sampling and data collection methods to be used during the investigation and RA activities are described in the SOPs included as Appendix B. The SOPs describe the field activities, sample management, and field documentation requirements.

## 4.2 PREPARATION AND COORDINATION

Prior to conducting either Stage I or Stage II activities, URS will conduct various tasks to prepare for field activities. These include obtaining the appropriate permits, clearing utilities, procuring contractors, and staging materials.

### 4.2.1 Permitting

Following the completion of Stage I activities, demolition areas will be refined, however, for a CERCLA removal project, no federal, state, or local permits are required for work conducted on Site (see Section 300.400 (e) of the National Contingency Plan).

The appropriate disposal facilities will be identified and waste profiles initiated (Subsection 3.5). As described in Subsection 3.5, relevant local and federal agencies will be identified for the transportation and disposal of waste and debris.

### 4.2.2 Utility Clearance

Locations selected for intrusive Site investigation field activities (e.g., soil boring drilling) will be cleared for both above and below ground utilities before investigation field activities begin. Boring locations will be located at least 24 inches away from active underground utilities. Suspected underground utilities will be marked on the ground with color-coded marking paint in accordance with American Public Works Association standards (red for electrical line, blue for water line, green for sanitary/storm sewer line, orange for telecommunications, yellow for gas line, etc.).

Before intrusive field activities can be performed at the Site, the Utility Notification Center of Colorado (UNCC) will be notified several days prior to conducting intrusive work. URS will indicate the areas requiring clearance and each location will be cleared for utilities including natural gas, telecommunications, water and sewer, electrical, fiber optics, and cable.

The UNCC will notify and schedule a utility meet with various utility companies to clear locations selected for intrusive fieldwork. Following the completion of the UNCC ticket (once their companies completed their locating), URS will arrange for a private utility locator to identify additional private and unmarked lines in the area. Utility clearance activities will be documented in a field logbook.

### 4.2.3 Procurement and Mobilization

Stage I and II activities will involve the procurement of subcontractors and equipment for the following services, but are not limited to:

- Asbestos sampling and building evaluation;
- Drilling and concrete coring;
- Onsite field lab rental;
- Surveying and utility locating;
- Analytical laboratory;
- Field trailer and generators;
- Building decommissioning and demolition;
- Soil excavation and backfilling;
- Transportation of waste; and
- Waste disposal facilities.

Mobilization and Site preparation will include setting up work zones, as described in Subsection 3.3; setting up an approved area for excavated soil stockpiles and investigative derived waste (IDW) storage; placing temporary sanitary facilities; locating underground utilities; establishing staging/laydown areas; constructing a decontamination pad (if needed); and mobilizing equipment and materials for health and safety, excavation, and sampling activities. Secured storage containers will be mobilized to the Site as needed to store materials, small tools, and equipment. Temporary fencing will be set up, as necessary, to protect the public, and to secure the equipment and material from theft or vandalism. Portable toilets and refuse containers will be set up near the work areas. Traffic control devices such as barricades, cones, and delineators, and signage will be used, as necessary, to manage pedestrian and vehicular traffic.

### 4.2.4 Asbestos Sampling and Building Evaluation

An asbestos building evaluation was conducted on February 24, 2014 for information prior to potential demolition. Prior to commencing intrusive work, asbestos samples were collected from portions of the Site building and the building will be evaluated by a Colorado Certified Asbestos Building Inspector (CABI). A standard building asbestos evaluation was conducted on Buildings A, B, C, and F, as they have the potential to be demolished. Limited asbestos evaluation of the floor only was conducted for Buildings D, E, G, H, and I, as they will not be demolished, but only the floor will be disturbed during drilling and excavation activities.

Preliminary findings indicated that ACM is not present within investigation and demolition areas, with the exception of the mastic used for the floor tile in Building G. Therefore, soil investigation borings will not be advanced in Building G, unless deemed necessary based on observations during and analytical results from Stage I drilling activities. ✓OK

## 4.3 STAGE I – INVESTIGATION AND DELINEATION

This subsection discusses the various tasks associated with the investigation and delineation of PCB-contaminated materials. Upon completion of this investigation activities stage, data

obtained will be reviewed in conjunction with historical data to estimate the extent and volume of impacted soils and the degree of demolition necessary to facilitate excavation activities. Following the evaluation of Stage I results, a Stage II Work Plan will be prepared that refines and expands upon the generalities and assumptions included in Subsection 4.4.

### 4.3.1 Wipe Sampling for PCB Evaluation

A total of 32 wipe samples (including quality control samples) for PCB analysis were collected from the ceiling, walls, and floors of Buildings B through I on February 24, 2014. A majority of the wipe samples will be analyzed using the field lab; however, confirmation wipe samples were collected at a 20 percent frequency from adjacent locations. If PCB wipe samples indicate that PCB dust is present in the building, PPE may be upgraded to Level C for a portion of the investigation activities, per the HASP.

When the building demolition and soil removal is completed, wipe samples will be collected from the walls and ceiling of the remaining building. If PCB dust is present, portions of the building will be cleaned to remove the dust. Procedures for wipe sample collection are included in Appendix B.

### 4.3.2 Soil and Concrete Investigation Activities

Proposed boring locations are presented on Figure 6 with brief rationale for the proposed locations. However, because the objective is to estimate the lateral and vertical extent of contamination for excavation and demolition planning purposes, the number, depth, and location of borings will be subject to field observations by the URS field representative.

URS will procure a subcontractor to perform direct push technology (DPT) drilling with continuous logging using acetate sleeves to allow for lithologic logging and soil sample collection at a relatively rapid rate that produces smaller volumes of IDW than other drilling methods. URS will record relevant field observations on field forms and/or in a logbook, including changes in material descriptions, lithologic contacts, olfactory and visual observations, and organic vapor analyzer (OVA) readings. SOPs for drilling and logging methodology are included in Appendix B. The small quantity of IDW (soil cuttings) generated will be stockpiled and disposed along with the soil removed from excavation activities.

The investigation approach includes four different types of boring locations including: (1) shallow perimeter borings, (2) shallow delineation borings, (3) deep delineation borings, and (4) shallow step-out borings (Figure 6). Perimeter boring locations are positioned around the exterior of the building at locations that are most likely to contain contamination if present. Rationale for the proposed shallow perimeter boring locations includes:

- Near exhaust fans in the event that PCBs were suspended to dust particles that were vented out of the building and deposited onto the ground surface;
- Near existing doorways or entrance and exit points as these may have been likely places for convenient dumping of liquids following cleaning of equipment or oil changes; and
- Near notable shifts in the building structure or foundation, indicating that the building footprint may have differed historically and potential entrance and exit points may have been located along these "shifts."

Delineation borings will be used to establish the initial excavation extent, which will be used to estimate removal volumes and aid in planning the demolition areas. A majority of the delineation borings proposed are shallow (i.e., to 4 feet below the concrete), as the presence of PCBs in soil regardless of depth will still necessitate the removal of concrete for access. The actual contamination depth will be determined during excavation activities. A subset of the delineation borings will be advanced to deeper depths until the extent of contamination has been delineated or groundwater is encountered. These deeper delineation borings will aid in estimating excavation depths. Due to the presence of ACM in Building G, borings will not be advanced within Building G, unless deemed necessary by field observations during or analytical results from the investigation.

Step-out borings accomplish the same objective as delineation borings; however, these borings will only be advanced if the closest boring to the west is observed to have PCB contamination in soil. During drilling activities, coring will be required to penetrate the concrete slab at a majority of the delineation borings. Concrete cores will be ground by the analytical laboratory and tested for the presence of PCBs, to the extent practical, for waste characterization planning purposes.

The anticipated number and location of borings (Figure 6) is summarized as follows with respect to the Site building (3555 Moline Street):

- 10 Perimeter Borings: these will be advanced outside of the building to approximately 4 feet bgs. Five will be located in the native soil south of the building and five in the asphalt north of the building.
- 12 Shallow Delineation Borings: these will be advanced within the building and each will require concrete coring through the concrete slab (estimated thickness between 6 to 12 inches). The depth will be subject to field observations; however, URS assumes an average depth of 8 feet bgs, with a minimum depth of 4 feet bgs and probable maximum depth of 12 feet bgs.
- 10 Deep Delineation Borings: these will also be advanced within the building and require concrete coring through the slab. The depth will be subject to field observations; however, URS assumes an average depth of 14 feet bgs, with a maximum depth of 16 feet bgs (limited by groundwater). URS anticipates that the boring located within the "Former 1800-ton Press" footprint will involve drilling through several feet of concrete; however, the depth to native soil is unknown. This depth will require drilling (e.g., using a star bit), as a standard surface coring device will not be able to attain the desired depth.
- 4 (up to 8) Step-Out Borings: these will be advanced inside the eastern portion of the building subject to what is observed in the eastern most delineation boring and subsequent step-out borings. These borings will require concrete coring through the slab and are anticipated to be shallow borings extending to approximately 4 feet bgs.

The western portion of the building is poorly lit, so the subcontractor will supply sufficient lighting, powered by generator, to safely perform the work. Furthermore, the subcontractor will properly ventilate fumes by using exhaust hoses leading outside and/or fans, to manage exhaust from generators and/or the drill rig while working inside the building.

Upon reaching the targeted boring depth, each boring will be abandoned with drill cuttings and/or wetted bentonite chips from the bottom to 1 foot bgs. The upper foot will be plugged with bentonite pellets, asphalt patching, or concrete patching, as appropriate to match the

surroundings. Boring locations will be identified and surveyed via conventional or Global Positioning System (GPS) methods, or an alternate measuring technique based on field conditions (e.g., use of a measuring wheel or tape relative to the edges of buildings or features with known survey coordinates).

### 4.3.3 Sample Collection and Analytical Testing

Soil samples will be collected from the retrieved DPT core from selected intervals based on lithologic contacts, visual staining, olfactory observations, and OVA readings. Sample locations will be recorded relative to the grid established from surveying (see Subsection 4.3.4) and collected as grab samples from the core recovered from DPT drilling, as discussed in SOP No. 4.0 (Appendix B). Grab sample material will be homogenized in a stainless steel bowl before taking aliquots for sample containers or the field lab kit equipment. Sample collection protocol and nomenclature is described in SOP No. 10.0 (Appendix B).

IS THIS NORMAL SAMPLING METHODOLOGY

Each soil sample collected during the investigation will be field screened using an on-site lab, with at least 20 percent of samples sent to a fixed analytical laboratory (TestAmerica) for confirmation and correlative purposes. The field lab consists of test kits, as described in SOP No. 11.0 (Appendix B), manufactured by Dexsil Corporation (L200DX) and has detection limits between 3 and 2,000 mg/kg. Confirmation samples sent to a fixed lab will be analyzed for seven aroclors via EPA Method 8082A, from which total PCBs can be calculated.

The field kits are aroclor-specific and can only run for one aroclor at a time; therefore, total PCBs would either have to be calculated by the summation of multiple tests, or from a general correlation or proportion observed between an indicator aroclor and the total PCBs. Based on previous investigations, Aroclors 1248 and 1254 were the most commonly encountered aroclors in soils, with Aroclor-1248 typically being the highest. Since Arochlor-1248 typically had the highest concentration, and Aroclor-1242 typically weathers to Aroclor-1248, Aroclor-1248 will be used as an indicator aroclor for the presence of PCB contamination and for estimating total PCBs. No field analysis for other aroclors will be performed on the primary screening samples; however, field tests will be run for both Aroclor-1248 and Aroclor-1254 on split samples for confirmation samples sent to the lab.

Each soil sample collected will be tested by the field kits for Aroclor-1248, with a portion of the samples run for Aroclor-1254. Split/confirmation samples (comprising at least 20 percent of the total screening samples) will be sent to the fixed lab for analysis of the seven aroclors via Method 8082A. As a result, at least 20 percent of soil samples taken will have field results for Aroclors 1248 and 1254 that can be compared to analytical results from a fixed lab for seven aroclors. Additional information regarding sample analysis is included in the QAPP as Appendix C.

Sample locations will be documented on a sketch drawing during the time of sampling and will be labeled in a manner associated with their origin as follows:

"SB"-"Boring Type and Sample Location Number"-"Sample Depth1"- "Sample Depth2"

"SB" precedes each sample identifier and denotes that the sample was collected from a soil boring. Boring type denotes whether it was from a perimeter (P), delineation (D), or step-out (SO) boring. The sample location number is the sequential number for the type of sample. Sample depths 1 and 2 denote the upper and lower bound from which the sample was collected to the nearest quarter foot. If the sample is from a discrete interval spanning less than 0.25 foot,

surroundings. Boring locations will be identified and surveyed via conventional or Global Positioning System (GPS) methods, or an alternate measuring technique based on field conditions (e.g., use of a measuring wheel or tape relative to the edges of buildings or features with known survey coordinates).

### 4.3.3 Sample Collection and Analytical Testing

Soil samples will be collected from the retrieved DPT core from selected intervals based on lithologic contacts, visual staining, olfactory observations, and OVA readings. Sample locations will be recorded relative to the grid established from surveying (see Subsection 4.3.4) and collected as grab samples from the core recovered from DPT drilling, as discussed in SOP No. 4.0 (Appendix B). Grab sample material will be homogenized in a stainless steel bowl before taking aliquots for sample containers or the field lab kit equipment. Sample collection protocol and nomenclature is described in SOP No. 10.0 (Appendix B).

IS THIS NORMAL SAMPLING METHODOLOGY

Each soil sample collected during the investigation will be field screened using an on-site lab, ples sent to a fixed analytical laboratory (TestAmerica) for urposes. The field lab consists of test kits, as described in SOP actured by Dexsil Corporation (L200DX) and has detection limits Confirmation samples sent to a fixed lab will be analyzed for seven A, from which total PCBs can be calculated.

IS THIS SAMPLING METHODOLOGY OK? NOT SURE ABOUT USING HOMOGENIZED SAMPLES

fic and can only run for one aroclor at a time; therefore, total calculated by the summation of multiple tests, or from a general ved between an indicator aroclor and the total PCBs. Based on rs 1248 and 1254 were the most commonly encountered aroclors ically being the highest. Since Arochlor-1248 typically had the highest concentration, and Aroclor-1242 typically weathers to Aroclor-1248, Aroclor-1248 will be used as an indicator aroclor for the presence of PCB contamination and for estimating total PCBs. No field analysis for other aroclors will be performed on the primary screening samples; however, field tests will be run for both Aroclor-1248 and Aroclor-1254 on split samples for confirmation samples sent to the lab.

Each soil sample collected will be tested by the field kits for Aroclor-1248, with a portion of the samples run for Aroclor-1254. Split/confirmation samples (comprising at least 20 percent of the total screening samples) will be sent to the fixed lab for analysis of the seven aroclors via Method 8082A. As a result, at least 20 percent of soil samples taken will have field results for Aroclors 1248 and 1254 that can be compared to analytical results from a fixed lab for seven aroclors. Additional information regarding sample analysis is included in the QAPP as Appendix C.

Sample locations will be documented on a sketch drawing during the time of sampling and will be labeled in a manner associated with their origin as follows:

"SB"-"Boring Type and Sample Location Number"-"Sample Depth1"- "Sample Depth2"

"SB" precedes each sample identifier and denotes that the sample was collected from a soil boring. Boring type denotes whether it was from a perimeter (P), delineation (D), or step-out (SO) boring. The sample location number is the sequential number for the type of sample. Sample depths 1 and 2 denote the upper and lower bound from which the sample was collected to the nearest quarter foot. If the sample is from a discrete interval spanning less than 0.25 foot,

the same number can be used for each depth. For example, a discrete soil sample taken from the third perimeter boring at a depth of 2.75 feet would be labeled as "SB-P3-2.75-2.75," whereas a sample taken from the first delineation boring from 4.5 to 5.25 feet bgs would be labeled as "SB-D1-4.5-5.25."

### 4.3.4 Post-Investigation Surveying

A land surveyor licensed by the State of Colorado will establish a grid system at the Site that will be used to locate recently advanced borings and existing groundwater monitoring wells, define the excavation limits, and be used as a reference for locating excavation limits and grab samples. Surveyed locations will be determined to within 1 foot horizontal accuracy using the State Plane Coordinate System. Vertical coordinates will be reported in feet amsl to within 0.1 foot accuracy based on the National Geodetic Vertical Datum of 1929 (NGVD 29) as adjusted by the National Geodetic Survey in June 1991 and converted to the NGVD of 1927 (NGVD 27). Survey coordinates will also be reported with respect to the North American Datum of 1983 (NAD 83) and North American Vertical Datum of 1988 (NAVD 88).

### 4.3.5 Data Evaluation and Excavation Design

Upon receipt of PCB wipe and soil analytical results, the nature and extent of PCB contamination at the surface and in the subsurface soils will be delineated. Field results for Aroclor-1248 concentrations from the field kits will be correlated to laboratory data to assess field kit accuracy and evaluate whether there is a strong correlation between Aroclor-1248 concentrations and total PCB concentrations. Field-correlated and laboratory-calculated concentrations of total PCBs will be compared to the cleanup levels of 25 and 100 mg/kg in the surface and subsurface soils, respectively, to estimate excavation extents.

The planned excavation extent will be used to estimate concrete and soil quantities that will be removed and disposed offsite during Stage II implementation. These quantities will directly relate to quantities of clean soil for backfill and concrete for repaving. The anticipated extent of the Stage II RA will also aid in understanding what level of building demolition may be required and planning the RA steps. This information will be captured in a Stage II Work Plan that will refine and expand upon the information presented in this Stage I Work Plan related to building demolition, excavation, disposal, backfill, and restoration, which is further described in Subsection 6.3.

## 4.4 STAGE II – DEMOLITION AND EXCAVATION

This subsection generally discusses Stage II tasks and activities at a conceptual level with stated assumptions that may change based upon Stage I results. Stage II tasks include building and concrete demolition, excavation of contaminated soil, hauling and disposal of waste, backfilling the excavation, and Site restoration. Figure 7 displays the conceptual layout for construction activities; however, demolition and excavation limits will be identified following the completion of Stage I activities. Stage II preparation activities will begin following the approval of the Stage II Work Plan, which is anticipated to require a few weeks of evaluation and discussion.

### 4.4.1 Mobilization and Work Area Preparation

Upon agency agreement of the Stage II Work Plan, mobilization and work area preparation will consist of procuring subcontractor(s), mobilizing to the Site and performing required locates,

setting temporary site security fence boundary, identifying exclusion zone, and staging the field trailer(s). Other tasks include:

- Prepare the Site and stage materials including hanging plastic sheeting for dust containment within building partitions and also along the floor for stock piling and including installing any required stormwater pollution protection measures;
- Installation of required decontamination (personnel and equipment/vehicles) areas as required; and
- Complete utility shutdown and/or shutoffs including gas, water, and electric.

Prior to excavation, utilities will be identified and erosion control measures such as silt fencing will be constructed. If utilities are identified and encountered, soil in the area may be excavated with smaller equipment, air knifing, or hand tools. Based on the number of utilities present in the excavation area, larger excavation equipment may be equipped with a knife or smooth-blade bucket (versus a bucket with teeth) to be used where practical to reduce chances of snagging a utility line.

Prior to commencing demolition activities, monitoring wells identified within the demolition area will be properly abandoned to seal off potential conduits to the subsurface in accordance with Rule 16 of the Office of the State Engineer (SEO) "Water Well Construction Rules" (2 CCR 402-2, SEO 2005). The saturated portion of the screen interval will be filled with sand and the unsaturated portion of the screened interval and the entire solid casing will be filled with bentonite to ground surface. Either bentonite-grout slurry or chips are acceptable; however, if chips are used, then the chips should be wetted at regular lifts between 3 and 4 feet. Then the upper portion of the well casing and well vault will be removed during demolition activities, and restored to approximately match surrounding conditions (e.g., soil, asphalt, or concrete).

### 4.4.2 Demolition Activities

Figure 4 shows the overall building and identifies the building sections and attachment buildings by letter and square footage. Building A is an open metal storage shed that will be removed by Hi-Tec prior to demolition activities. Building C is likely to be demolished prior to soil excavation to access the PCB contaminated concrete and soils, as well as to enable soil removal on both sides of the northern wall (running west to east) of Building D. Though possible, Building B is unlikely to require demolition as the ceiling is highly vaulted and the excavation depth has been limited to 3 feet bgs to avoid potential sloughing of landfill materials into the excavation. Although PCB contamination might be found beneath additional portions of the building, Buildings D, E, G, H, and I will not be demolished. In these buildings, PCB-contaminated concrete and soil will be removed to the extent possible without compromising structural integrity, as described in Subsection 4.4.3. A summary of demolition activities includes:

- Disassemble and relocate or dispose of Building A by Hi-Tec.
- Demolish outer walls and ceilings at Building C. Separate building material for recycle or disposal based upon PCB levels.
- After major demolition is complete, minor clean-up and wash down of PCB identified areas on the floor based on analytical results from PCB wipe sampling and soil investigation activities before moving onto the next area of demolition to be performed.

- Sawcut or chip and removal of concrete for excavation areas.
- Separate as necessary and temporarily stock pile or haul debris to approved landfills or recycle as an available option of clean debris.

### 4.4.3 Excavation of Contaminated Soils

The excavation depth and extent will be estimated following Stage I activities and will be outlined in the Stage II Work Plan. Excavation will continue until sampling confirms that PCB concentrations are below 25 or 100 mg/kg (for surface and subsurface soils, respectively), groundwater is reached, or until no longer deemed safe. Additional safety measures (e.g., shoring, benching, and/or sloping) will be implemented for excavation areas deeper than 4 feet per Occupational Safety and Health Administration (OSHA) requirements.

The excavation is planned to be above the static water table, and dewatering is not anticipated. Should precipitation collect in the excavation and come into contact with contaminated soil, the water will be removed from the excavation and stored as IDW for testing and proper disposal. As contaminated soil is excavated, it will be stockpiled within a vacant portion of the building out of the way of active excavation activities, to the extent practical.

Although no existing as-built reference drawings are available, field observations indicate that the main building's walls are constructed from vertical load bearing concrete double-tees. This type of building does not usually utilize the interior concrete slab on grade as part of the primary load-resisting system and should be able to be removed without affecting the building's structural integrity. What is likely a part of the primary load resisting system is the passive pressure of the subgrade (soil) on each side of the foundation footing for the double-tee walls at their base. Excavations at the base and foundation footings of the walls should be performed in a specific order and within limited extents to avoid building instability. Not more than three double-tee wall panels should be excavated at a single time and approximately equal quantities of soil should be removed from each side of the wall to prevent an unbalanced loading condition. Therefore, soils should be excavated so that not more than a 2-foot differential in height is maintained. The extent of the excavation away from the face of the double-tee wall should be greater than 3 feet and sloped away at a 1.5 horizontal to 1 vertical (1.5H:1V) slope and follow OSHA regulations based on soil type. If a portion the excavation spoils removed for stability is not contaminated, the portion may be stockpiled nearby for use in backfilling. If the above approach is necessary along the foundation of the building, offsite property access may be necessary to the south in the vacant field.

The initial excavation limits will be estimated from data gathered during Stage I activities. Once the estimated contaminant extent is excavated, soil samples will be field screened to assess whether additional removal is necessary (as described in Subsection 4.4.5). If additional excavation, horizontal or vertical, is deemed necessary based upon screening and analytical results, then the excavation, observation, and sampling process will continue until the confirmation sample results indicate the remedial goals and RAOs have been achieved or until safety and stability concerns prohibit excavation. Once the excavation objectives are achieved, excavation activities will be concluded and confirmation samples will be collected from select locations along the excavation sidewalls and bottom to evaluate and confirm achievement of the RAO.

Confirmation soil samples will be collected along the excavation sidewalls about every 30 feet at about the center depth of excavation, and from the excavation bottom at a frequency of about one sample for every 30-by-30-foot square grid area. Soil sampling methods are described in SOP No. 3.0 in Appendix B. Sample locations will be surveyed for documentation purposes. Fixed laboratory confirmation soil samples will be collected analyzed in accordance with the QAPP included as Appendix C.

### 4.4.4 Air Monitoring and Dust Control

Air monitoring and dust control will be conducted throughout the Stage II activities as described in Subsection 3.3.4.

### 4.4.5 Sample Collection and Analytical Testing

Sample locations will be recorded relative to the established grid (Site-specific coordinates) and collected as grab samples from the bucket of an excavator or backhoe. Grab sample material will be homogenized in a stainless steel bowl before filling sample containers. Similar to the sampling methodology during the investigation described in Subsection 4.3.3, each sample will be screened with field test kits for Aroclor-1248, with a portion of confirmation samples submitted to an analytical laboratory for analysis by Method 8082A, as well as field test kit screening for Aroclor-1254. Assuming that a moderate to strong correlation will be observed between the field test kits and analytical laboratory results from the Site investigation, a lower percentage, such as 10 percent, of samples will be submitted to a fixed laboratory for confirmation.

Final sampling locations will be identified and marked using stakes, lath, or flags, which will be surveyed prior to backfilling activities. Sampling locations will be surveyed via conventional or GPS methods, or an alternate measuring technique based on field conditions (e.g., use of a measuring wheel or tape relative to the edges of buildings or features with known survey coordinates). Sample locations will be documented on a sketch drawing during the time of sampling and will be labeled in a manner associated with their origin as follows:

"Sample Type"-"Sample Location and Number"-"Sample Depth"

The sample type will denote whether it is a grab sample from the excavation (EXC), soil stockpile (SS), concrete (CON), or other debris (DEB). If soil is loaded directly into roll-offs or haul trucks, the nomenclature "SS" will still be used. The sample location for an excavation sample will denote if it was taken from a floor (F) or sidewall (W). The sample location for soil stockpiles or roll-offs is the pile/roll-off number (numeric) from which it was taken. Concrete and debris samples will be numbered sequentially and relevant sample identification information will be recorded on the field form, however, no other information will be included in the name. For example, the third concrete and debris samples would be labeled as "CON-3" and "DEB-3," respectively.

The sample location number will be the sequential number for the type of sample, regardless of the excavation footprint or which soil stockpile is sampled. The sample depth will denote the approximate depth from which the sample was taken from the floor or sidewall relative to ground surface, which would be the depth of the excavation for floor samples. Sample depth will not pertain to soil stockpile samples. For example, if the first sample collected from the excavation is from the base at 8 feet and the second from the middle of the sidewall, their sample

identification names would be "EXC-F1-8" and "EXC-W2-4", respectively. The first and second soil sample collected from soil stockpiles 1 and 3 would be labeled "SS-1-1" and "S-2-3," respectively.

### 4.4.6 Soil Stock Piling and Disposal

Excavated material will be temporarily staged in either stockpiles on a lined surface or in lined roll-offs. To the extent practical, soil stockpiles or roll-offs will be placed within the vacant building to reduce potential migration from exposure to precipitation and wind. Following identification of PCB levels, the excavated material will be shipped offsite to an approved disposal facility, as discussed in Subsection 5.1.

The haul trucks will be loaded on a lined loading area outside the EZ, thus eliminating the need to decontaminate the trucks. When the trucks or roll-offs have reached their safely-allowed maximum capacity, the material will be covered with a tarp and secured for transportation. See Subsections 3.6 and 5.1 for additional information regarding the transportation and disposal of excavated soils.

### 4.4.7 Post-Excavation Surveying

Following demolition and excavation activities, a Colorado-licensed surveyor will survey the excavation extent, edges of the demolished building (if a portion of the building is left in place), and excavation sample locations (to the extent practical). Surveyed locations will be determined to within 1 foot horizontal and 0.1 foot vertical accuracy in the State Plane Coordinate System. The difference between the pre- and post-excavation coordinates will be used to approximate the volume of in-place soil removed (before bulking), which will be confirmed by the weigh tickets at the time of disposal.

### 4.4.8 Backfill and Compaction

The excavation will be backfilled with clean soil after confirmation sampling demonstrates that the soil excavation has attained the RAOs. URS will coordinate backfilling of interior excavation extents, whereas Hi Tec will backfill the exterior excavation. The backfill placement method will be direct release from trucks and reworking of the soil using common earth-moving and compacting equipment, such as backhoe with a sheep's foot roller. Backfill will subsequently be placed in sequentially discrete work zones in loose lifts followed by necessary compaction and/or grading to achieve a uniform backfill thickness and surface. Backfill will need to be placed in approximately equal lifts on both sides of the foundation, where applicable. Clean soil backfill will be placed until reaching the current ground surface, where it will be smoothed and crowned to prevent water from ponding. Backfill and compaction specifications will be finalized in the Stage II Work Plan, but are described in general in Subsection 5.3.

### 4.4.9 Surface Restoration

Following backfill and compaction activities, the surface will be restored to similar surroundings. Areas south of the building will be reseeded. Asphalt and concrete pavement areas north of the building will be restored with appropriate pavement by Hi-Tec. Surfaces within the building will be paved with reinforced concrete to match the surrounding slab thickness and grade. Seeding, paving, and concrete specifications will be finalized in the Stage II Work Plan, but are described in general in Subsection 5.3.

### 4.4.10 Post-Restoration Surveying

Following completion of backfilling and surface restoration activities, a Colorado-licensed surveyor will survey the final grade of the restored surfaces within the former excavation footprint. Surveyed locations will be determined to within 1 foot horizontal and 0.1 foot vertical accuracy in the State Plane Coordinate System.

### 4.4.11 Demobilization

Temporary facilities including staging and laydown areas, fencing, and temporary utilities will be removed from the Site upon completion of the field activities. The work area will be observed by the field representative to check that project-related equipment, trash, and debris have been collected and properly disposed. Permanent utility terminations, if any, will be coordinated with the property owner, and will comply with utility requirements.

Demobilization will also include the removal of equipment, tools, and supplies and evacuation of the temporary office space. Temporary fencing, traffic control devices, signs, storage containers, portable toilets, and refuse containers will be removed from the Site. Surplus materials, waste materials, and debris will be removed and returned to vendors, recycled, and/or disposed of, and work areas will be cleaned and returned to their original condition. Final demobilization will include removal of Site construction fencing, and decontamination pads.

Prior to demobilization, PCB wipe samples will be collected from select Site structures and features to assess if PCBs may have migrated during excavation and demolition activities. If unacceptable PCB concentrations are found to be present, structures and features may be cleaned via pressure washing or steam cleaning, which would be containerized as IDW for proper disposal.

This Section discusses assumptions related to waste disposal, building stability, and Site restoration during Stage II implementation.

## 5.1 WASTE CHARACTERIZATION, DISPOSAL QUANTITIES & FACILITY

Waste characterization samples, including soils and debris, will be collected during the RA from various materials for disposal to evaluate disposal options. Waste generated during the field activities will be characterized according to federal and state regulations using laboratory analytical results. The three potential waste categories are:

- Hazardous;
- Contaminated but not hazardous; or
- Nonhazardous.

Waste will be considered hazardous if it contains a "listed" waste or if it exhibits a hazardous waste characteristic (i.e., is ignitable, reactive, corrosive, or toxic) as defined by 40 CFR Part 261 Subpart C. Waste may also be characterized as contaminated but nonhazardous. If waste is nonhazardous and non-contaminated, it will be categorized as nonhazardous.

The waste characterization samples will be collected from soil screened as highly contaminated (with PCB concentrations >100 mg/kg) and from soil screened as having low contamination (with PCB concentrations < 25 mg/kg). Soil screened to have concentrations below 25 mg/kg and nonhazardous soils may be left on Site and reused as backfill, in accordance with the Settlement Agreement. Demolition debris and waste characterization samples will be collected from concrete, roofing, and wall materials. Several waste characterization samples may be collected from debris if the materials are found to have a wide range of PCB concentrations during sample screening. Additional waste characterization samples will be collected if requested by the disposal contractor.

Following laboratory analysis of the waste characterization samples, waste disposal locations will be confirmed.

The estimated area exceeding PCB concentrations of 100 mg/kg is not well defined at this time. However, following the completion of Stage I activities, an estimate of the total soil volume to be removed will be made and detailed in the Stage II Work Plan. Excavated material and debris not containing PCBs will be disposed at a local municipal landfill, while material with PCBs will be disposed at Clean Harbors Grassy Mountain Landfill Facility in Utah, as described in Subsection 3.5. Non-impacted concrete may be recycled and coordinated through the construction subcontractor. Disposable equipment, PPE, and other non-soil solid waste generated during field activities will be collected in plastic trash bags and disposed as municipal solid waste.

WHAT ARE DISPOSAL LIMITS@ LOCAL LANDFILL?

## 5.2 BUILDING DEMOLITION AND STABILITY

A structural engineer will evaluate the building stability prior to building demolition. The structural engineer will describe the building structural system, conduct and observe the buildings for signs of structural defects, damages, or distress. The Stage I investigation, along with the structural engineer's findings, will determine the final design for PCB contaminated concrete and soil removal.

## 5.3 GEOTECHNICAL SPECIFICATIONS FOR RESTORATION

Backfill, compaction, and paving specifications will be finalized in the Stage II Work Plan, but are generally described in this section. Clean backfill soil will be obtained from an off-site source and will be placed in the excavation at 6- to 8-inch lifts, or as directed by the geotechnical engineer. The backfill soil will be sampled to determine suitability through analytical and geotechnical testing, if necessary. Backfill will be compacted to a 95 percent maximum dry density as measured by the proctor test method (ASTM D698), with a moisture content of ± 3 percent of optimum. Compaction testing will be conducted at a frequency of about every 30 lineal feet per lift or as deemed appropriate to represent the lift. If a compaction test indicates the soil does not have the specified density and moisture content, the soil will be reworked and retested until specified density and moisture content are achieved. The water supply to be used for moistening the soil will be tested prior to use.

New concrete slabs on grade shall be at least 4-inches thick if reinforced, and 5-inces thick if unreinforced or other thickness as necessary to match the adjacent slab thickness. The concrete shall have a minimum compressive strength of 4,000 psi and have a light broom finish unless otherwise specified. At locations where the new slab on grade abuts the existing (undisturbed) slab on grade, new smooth steel dowels shall be used to provide shear transfer across the joint while not restricting shrinkage of the new slab.

This Section describes the record keeping and reporting anticipated for the project.

## 6.1 GENERAL FIELD DOCUMENTATION

A field representative will document field observations during the investigation, demolition, and remediation activities. The field notes will be prepared daily and will contain pertinent observations about the work such as general Site conditions, daily work performed, personnel and equipment on Site, excavation dimensions, number of truckloads or roll-off containers filled, sampling and monitoring activities, unusual conditions encountered, and other field observations related to the Site. The field notes also will include records of Site meetings.

Field observations and data will be recorded with waterproof ink in a permanently bound weatherproof field logbook with consecutively numbered pages, and/or on field data sheets. The Site conditions, as well as the soil RA activities, will be photographed before, during, and after investigation and removal activities. Select photographs will be included in the RA Report. A list of detailed field documentation items is included in SOP No. 10.0, and sampling protocol and nomenclature is described in SOP No. 10.0 (included in Appendix B). Health and safety meetings and actions will be documented in accordance with the HASP (included as Appendix A). Detailed logs of each truck loaded or unloaded at the Site will be retained, as described in Subsection 6.2. Chain of custody records will be maintained for collected samples, as indicated in the SOP No. 10.0 (included in Appendix B).

## 6.2 WASTE TRACKING

A contractor transporting nonhazardous wastes shall have a commercial transportation license. When transporting hazardous wastes, the transporter shall have an EPA Identification Number and shall comply with federal, state, and local transportation requirements. The following information will be recorded and tracked for each load of impacted soil transported offsite.

- Date and time;
- Weight/volume of waste/material;
- Trucking company and driver; and
- Vehicle identification.

Weighing loads on a certified scale will be the transporter's responsibility. Weight measurements shall be obtained for each full and empty container. Disposal quantities shall be based on the difference of weight measurements between the full and empty container. The weights shall be recorded on the manifest.

Field personnel will monitor the haul trucks leaving the Site to transport material to the waste disposal facility. The following transportation documents must be carried with the driver when transporting the waste:

- Hazardous waste manifest or proper shipping document identifying the shipment;
- Maps and complete instructions describing the route to be traveled; and
- Special instructions, including emergency procedures and transporter contacts.

When the excavated material is profiled as a hazardous waste, a Uniform Hazardous Waste Manifest form will be used to track the movement of the material from the point of generation to the point of ultimate disposal. Prior to transporting the excavated material offsite, an authorized TDCC representative will sign each hazardous waste manifest. The hazardous waste hauler will then sign the manifest and distribute one signed copy to the URS field representative. When the excavated material is profiled as a non-hazardous waste, a proper shipping document, such as a bill of lading or invoice, will be used to document and accompany each truck shipment.

URS will maintain a copy of the hazardous waste manifest or shipping document for each truckload on Site until completion of the RA. The shipping document is to include the following information:

- Name and address of waste generator, waste transporter, and disposal facility;
- Description of the waste (including analytical results representing the waste); and
- Quantity of the waste shipped.

URS will complete the following actions prior to shipping hazardous waste offsite:

- Review manifests;
- Sign and date each manifest certification by hand;
- Obtain the transporter's handwritten signature and acceptance date on the manifest and
- Retain one copy, giving the remaining manifest copies to the transporter.

## 6.3 STAGE II WORK PLAN

Following the completion of the Stage I activities, URS will develop a Stage II Work Plan that refines and expands upon building demolition, excavation, disposal, backfill, and restoration activities that this Stage I Work Plan generally describes. A conference call will be held with EPA to discuss the Stage I results and confirm EPA's agreement on the Stage II Work Plan approach. The Stage II Work Plan will provide greater detail as follows:

- **Demolition**: the extent or area required for demolition and the general approach for demolition of the subject buildings. Results from PCB wipe samples should be indicative of whether PCBs would be anticipated to be present on the debris.
- **Concrete Removal**: the areas requiring concrete removal for access to soils will be delineated and resulting quantities for hauling estimated. The concrete will be classified for disposal or recycling based on laboratory analysis of concrete core samples from the Stage I investigation. The concrete thickness, and appropriate removal machinery, will also be better understood for the area formerly containing the press.
- **Excavation**: the extent of contaminated soils will be estimated and from this, the extent of excavation will be evaluated considering safety and stability measures. The order of excavation (e.g., where to begin and what direction to work toward), will be evaluated with consideration given to the delineated contamination and building constraints.
- **Backfill**: the quantity of backfill will be estimated based on the estimated removal volumes. The method of placement and compaction will be revisited based on the

excavation extent and placement location. The level of compaction and moisture content will be considered again given the anticipated building use.

- **Restoration**: the concrete thickness and reinforcement type will be better understood from the concrete cores obtained during the Stage I investigation.

Drawings and specifications contained within the Stage II Work Plan will be used to outline the work during subcontractor procurement.

## 6.4 REMEDY COMPLETE ACHEIVEMENT

The RAO will be achieved through the removal of materials at the surface and subsurface with PCB concentrations greater than 25 and 100 mg/kg, respectively, as documented field screening results by analytical results from the laboratory confirmation samples. In circumstances where PCB-contaminated materials cannot be removed, they will be capped with concrete or asphalt overlying a 12-inch cover of clean soil (i.e., with PCB concentrations less than 25 mg/kg) to limit exposure and further reduce the possibility of migration and transport. Circumstances where PCB-contaminated materials would remain in place include if contamination (1) extends into the saturated zone; (2) extends deeper than 3 feet bgs beneath Building B; (3) cannot be safely removed from beneath Buildings D through I without compromising structural integrity; and/or (4) exists on or within the building foundation.

If contamination remains in place, additional post-removal site controls beyond a cap may be required, such as institutional controls governing future land use or soil disturbance. No long-term environmental monitoring or post-construction monitoring would be required for the Site following the completion of the RA.

## 6.5 REMOVAL ACTION REPORT

After the RA Completion Determination has been made by EPA, a RA Completion Report summarizing field activities will be submitted and include a discussion of:

- Stage I field activities completed including asbestos inspection, PCB wipe sampling, drilling, and analytical results.
- Stage II field activities completed including excavation, loading, dust control, transportation, disposal, field screening, sampling, lab analyses, backfilling, and site restoration.
- Volumes of debris hauled offsite and soils excavated and disposed.
- Copies of the chain-of-custody forms, laboratory reports, instrument calibration verifications, QA/QC checks, geotechnical test reports, waste transportation manifests, waste disposal forms, field notes, safety meeting records, and photographs.

Assuming contamination can be adequately removed to achieve the RAO, the report would conclude with a request for a No Further Action determination for the Site.

*This page intentionally left blank*

A general project schedule for the execution of this Work Plan is provided in Figure 8. The schedule includes tasks to be performed prior to, during, and following the field portion of the RA. The Stage II Work Plan will require approximately 5 weeks to prepare upon receipt of the final investigation results, assuming a 1-week turnaround time for laboratory results. The schedule will be updated as needed and agreed upon by TDCC and the EPA point of contact. Subcontractors will be procured as necessary, as described in Subsection 4.2.3.

*This page intentionally left blank*

Colorado Department of Public Health and Environment (CDPHE). 1999. Letter from CDPHE to TDCC. "No Further Action at Dow Chemical Magnesium Fabricated Products Facility". February 9.

Freedom Environmental. 2006. Phase I Environmental Site Assessment, 10380 Smith Road, Aurora, Colorado, for Ruby Stein Wagner & Associates (partial report).

LT Environmental Inc. 2013. Limited Phase II Environmental Site Assessment. May 14.

Office of the State Engineer (SEO). 2005. Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation, and Monitoring and Observation Hole/Well Construction. January 1.

Paragon Consulting Group. 1999. Limited Phase II Environmental Site Assessment, 11680 Smith Road, Aurora, Colorado for Nationwide Magazine. May.

Strategic Environmental Management, LLC (SEM). 2010. Voluntary Clean-Up Program Application, 11380 Smith Road, Aurora, Colorado, for Aurora Smith Road Ventures, LLC (partial report). August.

SEM. 2012. Subsurface Investigation, 3555 Moline Street, Aurora, Colorado, for Mr. David B. Goodell and Mr. Jim Gruber, President Gruber Commercial Real Estate Services. January.

Sundance Environmental Consultants, Inc. 2009. Phase I Environmental Site Assessment, 10380 Smith Road, Aurora, Colorado, for Aurora Smith Road Ventures, LLC. October.

Sundance Environmental Consultants, Inc. 2010. Phase II Environmental Site Assessment, 10380 Smith Road, Aurora, Colorado for Aurora Smith Road Ventures, LLC. June.

Sundance Environmental Consultants, Inc. 2012. Subsurface Investigation (Draft), for Mr. David B. Goodell and Mr. Jim Gruber (President of Gruber Commercial Real Estate Services). February.

TDCC. 1999. Letter from Ben Baker of TDCC to Barbara O'Grady at CDPHE. "Waste Determination- Dow Chemical Magnesium Fabricated Products, Facility, Aurora, Colorado." January 25.

United States Environmental Protection Agency (EPA). 1985. Verification of PCB Spill Cleanup by Sampling and Analysis. EPA/560/5-85-026. August.

URS Greiner Woodward Clyde. 1999. Phase II Investigation Report for the Dow Chemical Magnesium Extrusion Facility, Aurora, Colorado. January.

Walsh Environmental Scientists and Engineers, LLC. 2009. Phase II Environmental Site Assessment, 11380 Smith Road, Aurora, Colorado, for Timminco Limited (partial report). August 31.

## Table 1
## Summary of Applicable or Relevant and Appropriate Regulations

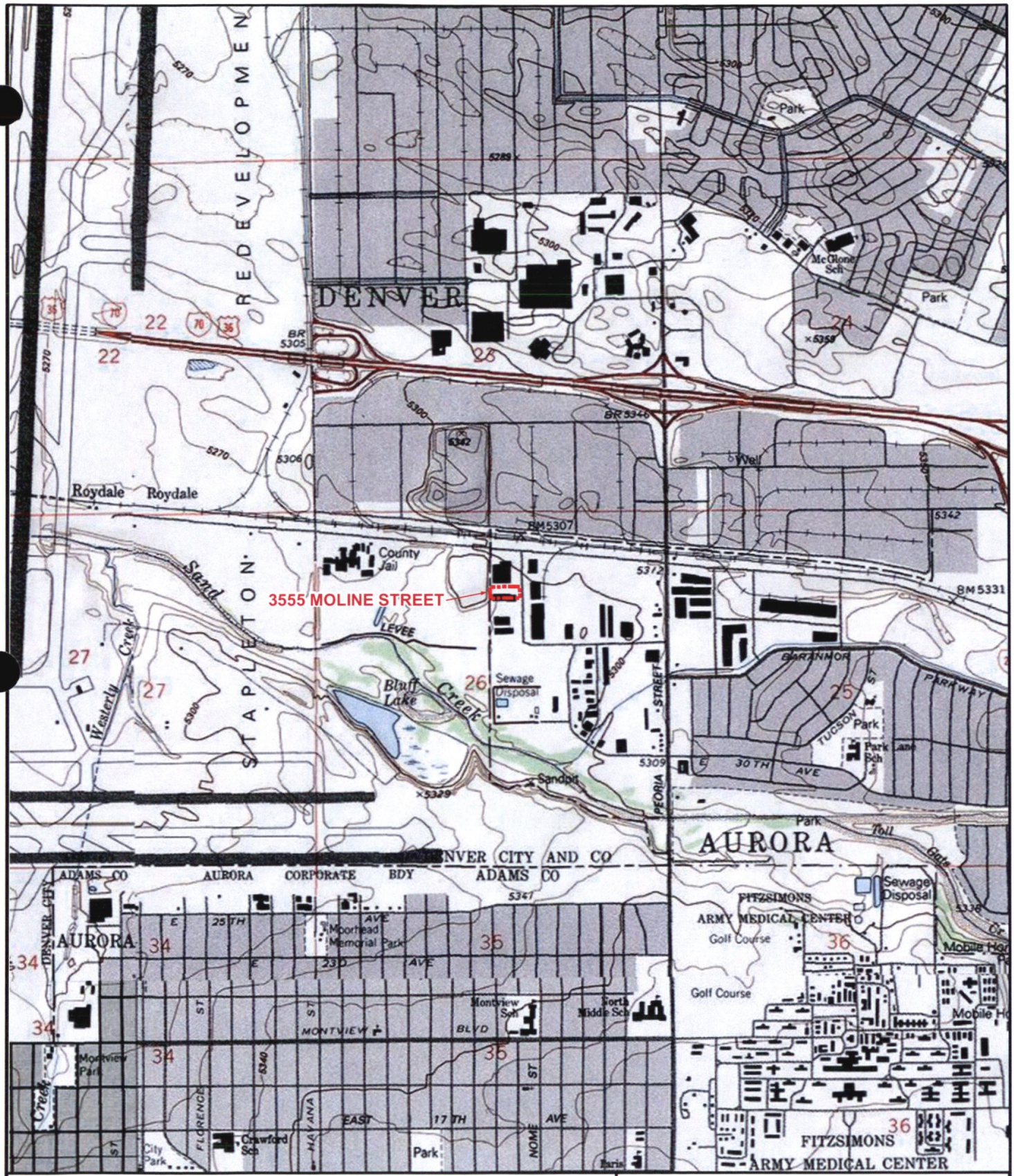
## Moline Street PCB Site
## Aurora, Colorado 80013

| Standard, Requirement, Criteria, or Limitation | Citation | Description | Applicable or Relevant and Appropriate | Comments |
|---|---|---|---|---|
| **FEDERAL** | | | | |
| Toxic Substances Control Act, PCB Spill Cleanup Policy | 52 FR 10688 April 2,1987 | Regulates hazardous materials from manufacture to disposal | To be considered | PCB Spill Cleanup policy considered in development of clean up levels. Clean up standards are applicable and will be applied, to the extent practicable and in consideration of the exigencies. PCB contaminated waste generated during the removal action will be disposed off-site consistent with RCRA and TSCA regulations. |
| **STATE** | | | | |
| Colorado Hazardous Waste Regulations | 6 CCR 1007-3, pursuant to CRS § 25-15-101 et seq. | Regulates generation storage and disposal of hazardous waste, and the siting, construction, operation, and maintenance of hazardous waste disposal facilities | Applicable | PCB contaminated waste generated during the removal action will be disposed off-site consistent with RCRA and TSCA regulations. |
| Colorado Fugitive Dust Control Plan/Opacity Regulation No. 1 | 5 CCR 1001-3, pursuant to CRD 25-7-101 et seq. | Regulates fugitive emissions generated during construction | Relevant and appropriate | Contemplated actions would not trigger permit requirements; however dust control will be required. |

**Table 1**
**Summary of Applicable or Relevant and Appropriate Regulations**

**Moline Street PCB Site**
**Aurora, Colorado 80013**

| Standard, Requirement, Criteria, or Limitation | Citation | Description | Applicable or Relevant and Appropriate | Comments |
|---|---|---|---|---|
| Colorado Environmental Covenants Law | CRS §§ 25-15-317 to 327 | Requires environmental covenants (ECs) or notices of environmental use restrictions (RNs) whenever residual contamination not safe for all uses is left in place or an engineered feature or structure that requires monitoring, maintenance, or operation is included in the remedy. | Applicable (Substantive Provisions) | Covenant may restrict land use and/or groundwater use. |
| Colorado Noise Abatement Statute | CRS § 25-12-101, et seq. | Establishes standards for controlling noise | Applicable | Site is in a commercial or industrial area. |




EXPLANATION

Property Boundary

Map Projection:
State Plane Feet, Colorado Central Zone, NAD83.
Basemap Source:
National Geographic Society, i-cubed (2013)

0 2,000 Feet

1 inch = 2,000 feet

N
W E
S

URS

**Figure 1** LOCATION MAP

*MOLINE STREET PCB SITE*
*AURORA, COLORADO*

| PROJECT NO. | DRAWING NO. | DATE |
|---|---|---|
| 41569671 | Fig1_Site_Location.mxd | 2/26/14 |